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|  |   |    | Application Number       | 10/692,833                 |  |
|  |   |    | Filing Date              | 2003-10-23                 |  |
|  |   |    | First Named Inventor     | J. Rodney Walton           |  |
|  |   |    | Art Unit                 | 2618                       |  |
|  |   |    | Examiner Name            | NGUYEN, DUC MINH           |  |
| Sheet  | 1 | of | 6                        | Attorney Docket No: 030060 |  |

| U.S. PATENT DOCUMENTS |                          |   |                                |  |   |
|-----------------------|--------------------------|---|--------------------------------|--|---|
| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | Document Number                             | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns,<br>Lines, Where<br>Relevant Passages<br>or Relevant Figures<br>Appear |
|                       |                          | Number-Kind<br>Code <sup>2</sup> (if known) |                                |  |   |
|                       | 001                      | US6144711                                   | 11-07-2000                     | Raleigh et al.                                     |   |
|                       | 002                      | US6292917                                   | 09-18-2001                     | Sinha et al.                                       |   |
|                       | 003                      | US6298092                                   | 10-02-2001                     | Heath, Jr et al.                                   |   |
|                       | 004                      | US6532225                                   | 03-11-2003                     | Chang; Li Fung et al.                              |   |
|                       | 005                      | US6594473                                   | 07-15-2003                     | Dabak et al.                                       |   |
|                       | 006                      | US6654613                                   | 11-25-2003                     | Maeng et al.                                       |   |
|                       | 007                      | US6693992                                   | 02-17-2004                     | Jones et al.                                       |   |
|                       | 008                      | US6760313                                   | 07-06-2004                     | Sindhushayana et al.                               |   |
|                       | 009                      | US6760882                                   | 07-06-2004                     | Gesbert et al.                                     |   |
|                       | 010                      | US6801790                                   | 10-05-2004                     | Rudrapatna et al.                                  |   |
|                       | 011                      | US6847828                                   | 01-25-2005                     | Miyoshi et al.                                     |   |
|                       | 012                      | US6888899                                   | 05-03-2005                     | Raleigh et al.                                     |   |
|                       | 013                      | US6920192                                   | 07-19-2005                     | Laroia et al.                                      |   |
|                       | 014                      | US6950632                                   | 09-27-2005                     | Yun et al.   |   |
|                       | 015                      | US6956906                                   | 10-18-2005                     | Tager et al.                                       |   |
|                       | 016                      | US6996380                                   | 02-07-2006                     | Dent et al.  |   |
|                       | 017                      | US7020110                                   | 03-28-2006                     | Walton; Jay Rod et al.                             |   |
|                       | 018                      | US7020490                                   | 03-28-2006                     | Khatri et al.                                      |   |
|                       | 019                      | US7103325                                   | 09-05-2006                     | Jia et al.   |   |
|                       | 020                      | US7116652                                   | 10-03-2006                     | Lozano et al.                                      |   |
|                       | 021                      | US7120199                                   | 10-10-2006                     | Thielecke et al.                                   |   |

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|                       | 022                      | US7133459                                   | 11-07-2006                     | Onggosanusi et al.                                 |   |
|                       | 023                      | US7149239                                   | 12-12-2006                     | Hudson et al.                                      |   |
|                       | 024                      | US7158563                                   | 01-02-2007                     | Ginis et al.                                       |   |
|                       | 025                      | US7242727                                   | 07-10-2007                     | Liu et al.   |   |
|                       | 026                      | US7248841                                   | 07-24-2007                     | Agee; Brian G. et al.                              |   |
|                       | 027                      | US7260153                                   | 08-21-2007                     | Nissani (Nissensohn) et al.                        |   |
|                       | 028                      | US7260366                                   | 08-21-2007                     | Lee et al.   |   |
|                       | 029                      | US7308035                                   | 12-11-2007                     | Rouquette et al.                                   |   |
|                       | 030                      | US7327800                                   | 02-05-2008                     | Oprea et al.                                       |   |
|                       | 031                      | US7392014                                   | 06-24-2008                     | Baker; Matthew P. J. et al.                        |   |
|                       | 032                      | US7551580                                   | 06-23-2009                     | du Crest et al.                                    |   |
|                       | 033                      | US7573805                                   | 08-11-2009                     | Zhuang et al.                                      |   |
|                       | 034                      | US20010031621                               | 10-18-2001                     | Schmutz, Thomas R et al.                           |   |
|                       | 035                      | US20020071445                               | 06-13-2002                     | Wu, Geng et al.                                    |   |
|                       | 036                      | US20020126803                               | 09-12-2002                     | Jones, William W et al.                            |   |
|                       | 037                      | US20020132600                               | 09-19-2002                     | Rudrapatna, Ashok N et al.                         |   |
|                       | 038                      | US20020163879                               | 11-07-2002                     | Li, Xiaodong et al.                                |   |
|                       | 039                      | US20030043887                               | 03-06-2003                     | Hudson, John E et al.                              |   |
|                       | 040                      | US20030060173                               | 03-27-2003                     | Lee, Yong-Suk et al.                               |   |
|                       | 041                      | US20030076797                               | 04-24-2003                     | Lozano, Angel et al.                               |   |
|                       | 042                      | US20030086514                               | 05-08-2003                     | Ginis, Georgios et al.                             |   |

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|                       | 043                   | US20030092456   | 05-15-2003                     | Dent, Paul Wilkinson et al.                     |   |
|                       | 044                   | US20030112745   | 06-19-2003                     | Zhuang, Xiangyang et al.                        |   |
|                       | 045                   | US20030123381   | 07-03-2003                     | Zhuang, Xiangyang et al.                        |   |
|                       | 046                   | US20030123389   | 07-03-2003                     | Russell, Patrick Gene et al.                    |   |
|                       | 047                   | US20030128658   | 07-10-2003                     | Walton, Jay Rod; et al.                         |   |
|                       | 048                   | US20030139196   | 07-24-2003                     | Medvedev, Irina et al.                          |   |
|                       | 049                   | US20030147371   | 08-07-2003                     | Choi, Sung-Ho et al.                            |   |
|                       | 050                   | US20030153320   | 08-14-2003                     | Noerpel, Anthony et al.                         |   |
|                       | 051                   | US20030157953   | 08-21-2003                     | Das, Arnab et al.                               |   |
|                       | 052                   | US20030161282   | 08-28-2003                     | Medvedev, Irina et al.                          |   |
|                       | 053                   | US20030165189   | 09-04-2003                     | Kadous, Tamer; et al.                           |   |
|                       | 054                   | US20030235147   | 12-25-2003                     | Walton, Jay R et al.                            |   |
|                       | 055                   | US20040042439   | 03-04-2004                     | Menon, Murali Paravath et al.                   |   |

| FOREIGN PATENT DOCUMENTS |                       |                         |                                |   |                              |
|--------------------------|-----------------------|-------------------------|--------------------------------|---|------------------------------|
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|  |   |    |   | Examiner Name              | NGUYEN, DUC MINH |
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|--|-----|---|------------|--|---|--------------------------|
|  | 056 | WO01080510  | 10-25-2001 | AWARE INC [US]                         |   | <input type="checkbox"/> |
|  | 057 | EP0991221A2   | 04-05-2000 | LUCENT TECHNOLOGIES<br>INC [US]        |   | <input type="checkbox"/> |
|  | 058 | EP1185001A2   | 03-06-2002 | NORTEL NETWORKS LTD<br>[CA]            |   | <input type="checkbox"/> |
|  | 059 | EP1207645A1   | 05-22-2002 | LUCENT TECHNOLOGIES<br>INC [US]        |   | <input type="checkbox"/> |
|  | 060 | EP1223702A1   | 07-17-2002 | LUCENT TECHNOLOGIES<br>INC [US]        |   | <input type="checkbox"/> |
|  | 061 | EP1241824A1   | 09-18-2002 | ERICSSON TELEFON AB L M<br>[SE]        |   | <input type="checkbox"/> |
|  | 062 | JP11069431A   | 03-09-1999 | MITSUBISHI ELECTRIC CORP               |   | <input type="checkbox"/> |
|  | 063 | JP11163823A   | 06-18-1999 | VICTOR COMPANY OF<br>JAPAN             |   | <input type="checkbox"/> |
|  | 064 | JP2001044930A   | 02-16-2001 | MATSUSHITA ELECTRIC IND<br>CO LTD      |   | <input type="checkbox"/> |
|  | 065 | RU2158479C2   | 10-27-2000 | AL KATEL N V [NL]                      |   | <input type="checkbox"/> |
|  | 066 | WO0182521A2   | 11-01-2001 | QUALCOMM INC [US]                      |   | <input type="checkbox"/> |
|  | 067 | WO02062002A1  | 08-08-2002 | QUALCOMM INC [US]                      |   | <input type="checkbox"/> |
|  | 068 | WO02073869A1  | 09-19-2002 | ERICSSON TELEFON AB L M<br>[SE] et al. |   | <input type="checkbox"/> |

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|                                 | 069         | LI LIHUA, et al., "A Practical Space-Frequency Block Coded OFDM Scheme for Fast Fading Broadband Channels" 13th IEEE International Symposium on Personal Indoor and Mobile Radio Communications. PIMRC 2002. 15-18, September, 2002, pages 212-216, vol. 1, XP002280831. |  |  |    |

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|                                 | 070      | M.A. KOUSA, et al., "Multichannel adaptive system," IEE Proceedings-I, Vol. 140, No. 5, October 1993, rages 357-364.  |  |    |
|                                 | 071      | YOSHIKI, T., et al., "A Study on Subcarrier Adaptive Demodulation System using Multilevel Transmission Power Control for OFDM/FDD System," The Institute of Electronics, Information and Communications Engineers general meeting, lecture collection, Japan, March 7, 2000, Communication 1, page 400. |  |    |

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